



## Technical Information

### Sample Inlet Controller

#### Summary

The Sample Inlet Controller is a simple, smaller and lower cost alternative to the AVC1 and AVC6 valve controllers when only a small number of valve are to be controlled. The SIC has no internal power supply and requires an external 24V dc supply for operation. The Turbo Interface and Power Unit (TIPU) typically provides this supply.

Manufactured in England by:

HIDEN ANALYTICAL LTD  
420 Europa Boulevard, Warrington, WA5 7UN, England  
t: +44 (0) 1925 445225 f: +44 (0) 1925 416518  
e: [info@hiden.co.uk](mailto:info@hiden.co.uk) w: [www.HidenAnalytical.com](http://www.HidenAnalytical.com)



## Specification

Referring to Hiden Drawing Series HA-106-001

### Outputs

4 off 24V dc valve driver outputs

1 off 24V dc 15W auxiliary output for sample point heating switched by main POWER ON switch (Common to all Configuration Types).

### MSIU I/O

Accepts up to 4 off inputs from MSIU for automatic control where applicable.

Provides 1 off output to MSIU\* to indicate status OK. (\* Not currently utilised by MASsoft)

### Interlocks/Trips

3 off independent interlock circuits are available for connection to external voltage free contacts.

Contacts are normally closed in the

safe state. The SIC is supplied with shorting links as standard.

### Other Functions

Internal clock available for setting delays between functions.

## Configuration – Type Options

The basic SIC assembly is configurable during build to provide a multiplicity of inlet specific type options. Each type option has an appropriate control logic map internally stored in the SIC firmware. The control logic map selected determines the configuration type.

The front panel is populated with the required number and type of push button switches and indicators to match the configuration. Laser printed legends are then inserted into the switches and indicators to provide indication of function.

Switch legends are in English Language to suit the Configuration Type. It is also possible to implement other language options or symbolic representations if required.

### Type 1

Configuration for manual control only of a capillary solenoid isolation valve (and also a bypass changeover valve for systems with a separate bypass rotary pump). Pressing SAMPLE opens the isolation valve providing that the interlocks 1-3 are in a safe state. Pressing STANDBY or an interlock fail will close the isolation valve. Typically used to isolate the capillary inlet between samples to prevent ingress of atmospheric air and subsequent degradation in system back ground levels.

A signal out to the MSIU\* indicates

that POWER is on, SAMPLE mode is selected and that the interlocks are OK.

### **Type 2**

Configuration for sampling hydrogen with an inert gas purge. Identical configuration to Type 1, but with additional indicators to warn of PURGE FAIL and VACUUM FAIL conditions (assigned to Interlocks 2 and 3 respectively).

### **Type 3**

Reserved for Development

### **Type 4**

Configuration for control of 4 sample or calibration solenoid valves, typically a 4-way inlet valve manifold. Control is `1 of n`, that is only 1 valve may be selected at any time.

A key switch is provided to select the MANUAL mode of operation via the SAMPLE select switches. In AUTO mode, valve selection is via direct commands from the MSIU and the sample select switches are disabled. The lamps within the switches continue to indicate the valve selected. The key is removable in AUTO mode (it fouls the cover on QIC 20).

Failure of any interlock disables all valve drive outputs in MANUAL or AUTO mode.

A signal output to the MSIU\* indicates that POWER is on, AUTO mode is selected and that the interlocks are OK.

### **Type 5**

Configuration as Type 4, but accepts control signals from the Proteus Valve Drive Module to drive up to 4 discrete calibration solenoid valves associated with Proteus valve port positions 1 to 4.

### **Type 6**

Configuration for control of the HPR30 analyser process valve and RGA valve with external protection interlocks provided by the analyser Penning gauge, process Pirani gauge and process high vacuum gauge.

A key switch is provided to select the MANUAL mode of operation via the switches SAMPLE PROCESS GAS, SAMPLE RESIDUAL GAS and STANDBY. The external process interlocks inhibit selection of the 2 SAMPLE states until the process pressure is at an appropriately low level for sampling in that state.

In the AUTO mode of operation the above switches are disabled. The lamps within the switches continue to indicate the operational state.

Selection of the 2 SAMPLE states or STANDBY is automatic and is determined by the status of the process interlocks.

Both AUTO and MANUAL mode of operation are disabled if the analyser Penning gauge interlock operates (open circuit). All valves revert to a safe state in this condition as indicated by the lamp within the TRIP/RESET switch. The controller will remain disabled until the interlock is restored and an operator manually resets the TRIP/RESET switch.

A signal output to the MSIU\* indicates that POWER is on, AUTO mode is selected and that status is normal, that is, not in a tripped state.